



Postharvest losses in Africa - Analytical review and synthesis

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Key messages: most important findings of the present review project

Evidence of postharvest losses (PHLs) is scanty and spotty



The magnitude of losses is often exaggerated because of poor loss assessment methodology

Loss is often economic loss rather than physical product loss

PHL research should be conducted in a way to generate innovations that are effective in reducing losses and improving income



Plan of the presentation

1. What is the development challenge, the idea the project is about?



2. Innovation: what is new?

3. What are the results of the project?

4. What are the key implications?



What is the development challenge, the idea?

How to feed 9.1 billion people with safe food by 2050?

Food security and food safety are major problems in SSA

Postharvest losses are constraints to food security in SSA

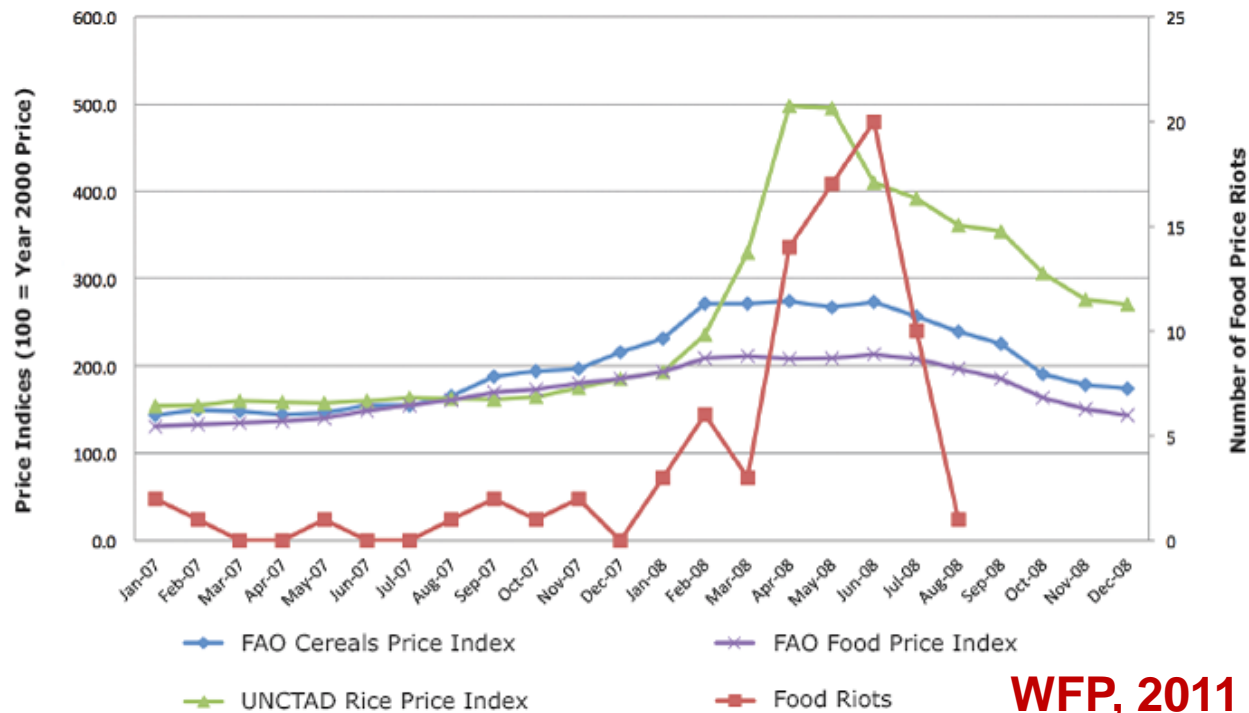
Annual value of PHLs for grain alone in SSA was estimated exceeding USD4 Billion





What is the development challenge, the idea?

Figure 1. Food Prices and Rioting, 2007-2008



WFP, 2011

Global food crisis (2006)

Increasing food prices

Rising food prices contribute to food insecurity

Food Riots in many countries of SSA

Price volatility continued in Africa after the crisis
High prices- Weak and inefficient market



What is the development challenge, the idea?

Renewed interest to mitigate PH losses as part of effort to overcome food insecurity and poverty in food deficit countries

Aim

Provide evidences on PHLs and PH innovations in SSA through a comprehensive and systematic review

Research questions

What are the hotspots of PHLs and the magnitude of losses along commodity value chains?

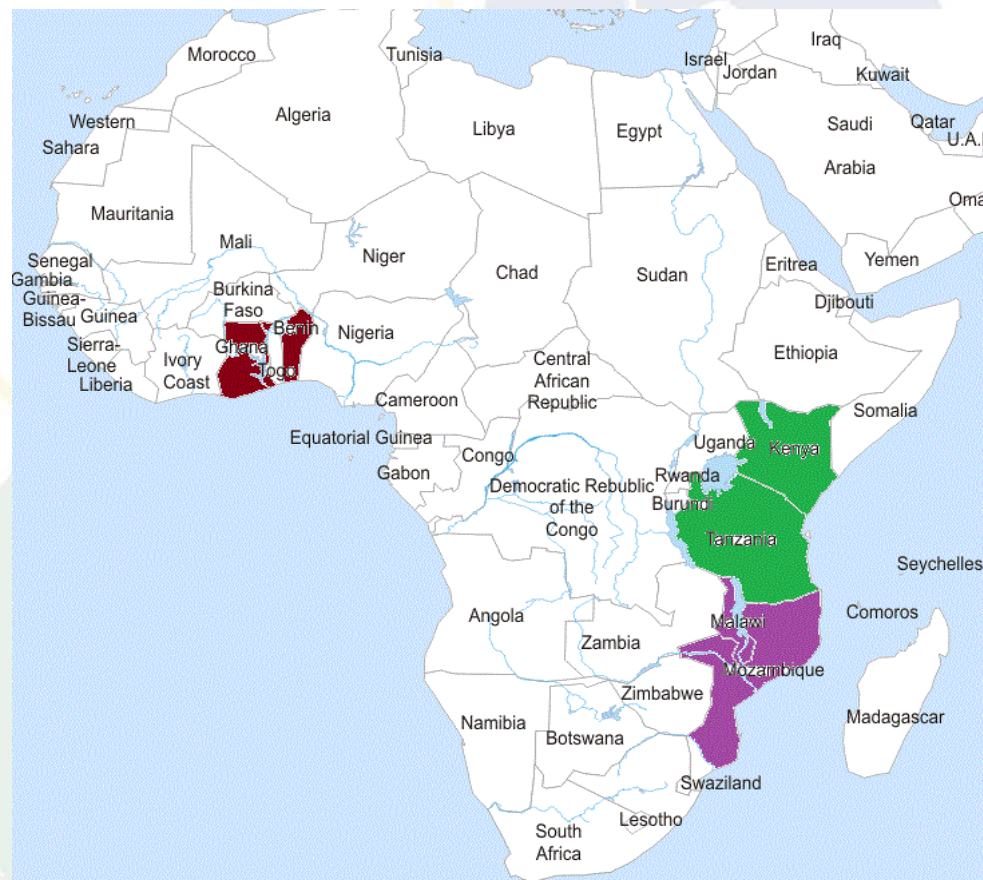
What are the appropriate strategies used for the mitigation of losses?



Project sites located in
different parts of SSA
**Benin and Ghana (West
Africa)**
**Kenya and Tanzania (East
Africa)**
**Malawi and Mozambique
(Southern Africa)**

More PH works have been
conducted in **West Africa**
compared to **East Africa**
and **Southern Africa**

Innovation: what is new?



Possibility of technologies transferred
from **West** to **East** and **Southern Africa**





Innovation: what is new?

Multi-disciplinary approach with national experts

Two national consultants: one postharvest specialist and one agricultural economist

Inception workshop to develop and validate the review methodology in collaboration with national consultants and international experts

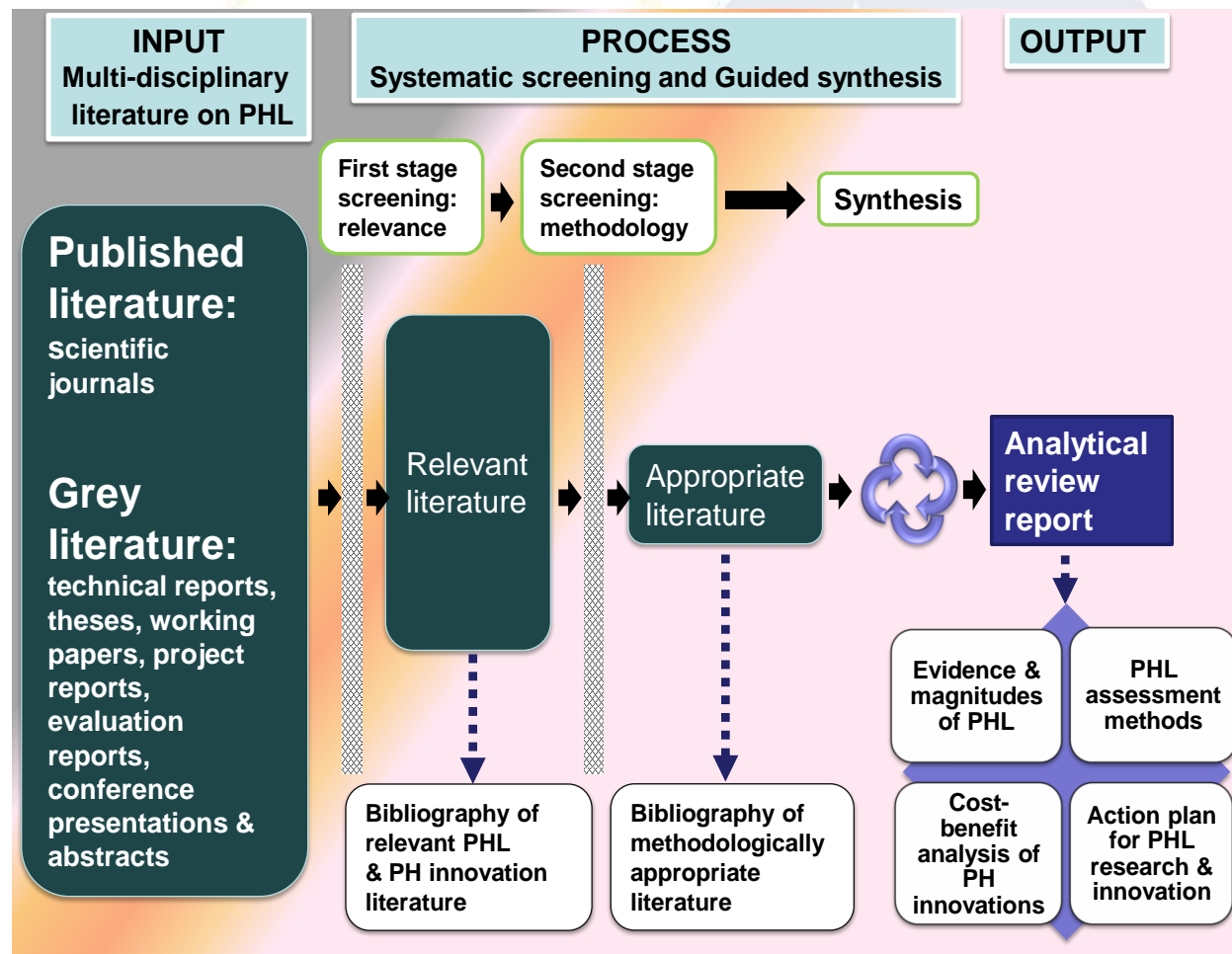


Results validation workshop involving other experts in postharvest



Innovation: what is new?

- Systematic
- Comprehensive
- Screening almost all the available literature
- Focus not only on technical but also on socio economic components





Innovation: what is new?

Quick comparison with other reviews

	ICIPE/IDRC	FAO/World Bank	AGRA	APHLIS
Commodity	Many including fruits and vegetable and animal products	Only grains	Many except fruits and vegetable and animal products	Only cereals
Method	Comprehensive and systematic screening of all available literature Value chain	Experts survey (Subjective) Review of project reports Only storage	Estimation Value chain	Simulation Value chain
Data	Actual from screened literature	FAOSTAT, APHLIS & other sources	FAOSTAT & other not screened literature	Estimation based on adjusted data



What are the results?

COUNTRY	NUMBER OF ARTICLES REVIEWED PER COMMODITY CATEGORY							
	CEREALS	GRAIN LEGUMES	FRUITS	VEGETABLES	ROOTS & TUBERS	ANIMAL PRODUCTS	OIL CROPS	TOTAL
TANZANIA	16	5	1	1	16	3	0	42
KENYA	14	6	6	1	4	5	0	36
MALAWI	9	3	0	0	2	1	1	16
MOZAMBIQUE	5	0	0	0	1	1	0	7
GHANA	15	10	4	7	14	3	2	55
BENIN	44	8	2	3	7	0	0	71



What are the results?

COUNTRY	LOSSES (%)								
	MAIZE	RICE	BEANS	MANGO	FISH	COWPEAS	TOMATO	YAM	MILK
TANZANIA	3.8 - 21.5	-	14.7 - 17.5	28.3 - 43.8	7- 30.2	-	14	-	-
KENYA	21-24	-	7.7	25.1 - 44.4	-	-	1-10	-	-
MALAWI	7.6 - 28	8 - 26.9	4.2 - 9.1	-	18-22	-	-	-	
MOZAMBIQUE	11-47	-	-	-	39-58	-	-	-	12.6
GHANA	10 - 18	5.5- 9	-	36- 60.6	11.2- 31.9	1.1 - 10	20.5- 30.4	22-39	-
BENIN	10-45	2.8	-	49.5- 81.7		23.3- 30.8	29.6- 60.8	25-40	-



What are the results?

Most research work use methodologies that don't take into account
store withdrawals during storage

Some methodologies give a PHL value for **a limited period** in the storage
season and not the overall loss throughout the year

Some measurements of losses are not along the **whole postharvest**
value chain system

There are no generally replicable methods for evaluating postharvest
losses of **fresh produce** (most methods are **subjective**)

Intrinsic limitations of methodologies under practical conditions:
different methodologies > same aspect = different result

Discrepancies in sample heterogeneity: some results represent findings
in **single locality**, others are **averages of a number of localities/districts**



What are the results?

PHLs evidence exists but scanty and spotty

Often PHLs are generally exaggerated

**Most research works were concentrated on
On-farm storage**

**Assessment of losses and postharvest
innovations from the perspective of entire
value chains is limited**

**Loss assessments target physical losses,
assessing weight loss of commodity that
becomes unfit for human consumption**





What are the results?

Loss is often economic loss rather than physical product loss



Few studies on the adoption of mitigation strategies were conducted

Information on cost of loss reduction and economic benefit of innovations are lacking

Improved technologies are often not economically feasible at the smallholder scale levels and there are local methods that are easy to use and may be as effective and less costly



What are the results?

IDRC made a good decision by funding this project

Gathering evidence on current PHLs, will help not only in planning for mitigation interventions but will also help to measure progress against any PHLs reduction target

Results of the project are based on well screened literature with a set of criteria developed by national and international experts in PH



What are the results?

A wide dissemination of the outputs (research reports, policy brief, journal articles and database) of the project in the participating countries will enhance the success of the project



Information about the project have been shared with World Resource Institutes (WRI) and BMZ/GIZ

This project added to the existing knowledge that PHLs are often exaggerated and that information are lacking for the whole value chain

It also helped identifying gap and outlook for postharvest research and innovations



What are the implications?

The present review lays the foundation for many research organizations as well as development agencies in search of information on PHLs for proposal development



The gaps identified in terms of research and innovation can be used by IDRC for call for proposals



What are the implications?

Results of the present review are being compiled for the development of journal articles by each country:
Six (06) articles have been submitted to *icipe* by collaborators for review

For each country there is opportunity to conduct more rigorous field studies for PHLs assessment using a systematic methodology





What are the implications?

Results of the present review point at opportunities for relevant improvements to PH systems

This can be tested through:



- 1-** Improving income generation through alternative use of products unfit for human consumption and postharvest by-products
- 2-** Enhancing nutrition, food hygiene, and public health through postharvest processing and value addition
- 3-** Promoting export of commodities through management of aflatoxin contamination



What are the implications?

Role that ICIPE may play in leading research on postharvest: we see *icipe* as a **coordinating institution** in order to avoid duplication of research activities



Also, *icipe* has the expertise to conduct its **own research activities** and at the same time playing the role of research coordination



What are the implications?

How a PHL project should look like?

Holistic with value chain perspective

Participatory for technology development

Should have a component of cost-benefit analysis

Market oriented

Should have a component of knowledge management and dissemination

Should have component of adoption study

Should have a component of impact assessment





Thank you for your attention